CLAIMS

1. A process for detecting a short RNA fragment comprising the steps of:

labeling the short RNA fragment having a nucleotide sequence with a detectable platinum compound having a marker moiety to form a labeled small RNA fragment;

exposing said labeled short RNA fragment to a capture oligonucleotide comprising at least two replicates of a nucleotide sequence complementary to the nucleotide sequence of said short RNA fragment;

contacting said labeled short RNA fragment and said capture oligonucleotide to hybridization conditions; and

detecting the marker moiety upon hybridization between said labeled small RNA fragment and said capture oligonucleotide.

2. The process of claim 1 wherein said small RNA fragment is present in a mixture of *in vivo* synthesized RNA fragments.

3. The process of claim 1 wherein said marker moiety is selected from the group consisting of: a fluorophore, a hapten, a radioisotope, an enzyme, an enzyme substrate, a dye, a sol, a chromophore, and an antibody.

4. The process of claim 1 wherein said capture oligonucleotide is immobilized on a solid substrate.

5. The process of claim 4 wherein said solid substrate is a microarray spotted with said capture oligonucleotide and a plurality of different capture oligonucleotides that vary in nucleotide sequence relative to said capture oligonucleotide.

6. The process of claim 1 wherein said capture oligonucleotide further comprises an additional nucleotide sequence having a function selected from the group consisting of: universal control, a spacer, and a combination thereof.

7. The process of claim 6 wherein said additional nucleotide sequence is interspersed between said at least two replicates.

8. The process of claim 6 wherein at least two additional nucleotide sequences surround the complementary RNA nucleotide sequence of interest.

9. The process of claim 1 wherein hybridization conditions include heating said labeled short RNA fragment and said capture oligonucleotide to between 30° and 40° Celsius.

10. The process of claim 1 wherein detection of hybridization between said labeled short RNA fragment and said capture oligonucleotide is by fluorescence.

11. The process of claim 1 wherein detection of hybridization between said labeled short RNA fragment and said capture oligonucleotide is by signal amplification.

12. The process of claim 11 wherein the signal amplification is tyramide signal amplification.

13. The process of claim 1 further comprising the step of removing nucleotide sequences over 80 nucleotides in length prior to labeling.

14. The process of claim 1 further comprising the step of purifying said labeled short RNA fragment prior to exposure of said labeled short RNA fragment to said capture oligonucleotide.

15. A detection array for short RNA fragments comprising:

a substrate;

a first spot on said substrate comprising a first capture oligonucleotide having at least two replicates of a nucleotide sequence complementary to a first short RNA fragment and having an additional nucleotide sequence having a function selected from the group consisting of: universal control and spacer; and

a second spot on said substrate displaced from said first spot comprising a second capture oligonucleotide having at least two replicates of a nucleotide sequence complementary to a second short RNA fragment and having an additional nucleotide sequence having a function selected from the group consisting of: universal control and spacer.

16. The array of claim 15 wherein said substrate is glass.

17. The array of claim 15 wherein said plurality of spots includes at least 10 spots.

18. The array of claim 15 wherein said first spot has a linear dimension of from 1 to 100 microns.

19. The array of claim 15 wherein the additional nucleotide sequence of said first capture oligonucleotide is interspersed between the at least two replicates.

20. A detectable small RNA fragment comprising a small RNA fragment bound to a detectable platinum compound, said small RNA fragment immobilized on a detector array according to claim 15 or 16.

21. A method of detecting a small RNA fragment which comprises binding a detectable platinum compound to said small RNA fragment and exposing the same to a detector array as claimed in any one of claims 15, 16, 17, 18, 19 or 20.

22. A purified small RNA fragment obtainable by the process as claimed in claim 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 or 14.

23. A purified small RNA fragment of claim 22 through contact with a detector array as claimed in claim 15, 16, 17, 18, 19 or 20..

24. A commercial package comprising a detector array according to claim 15, 16, 17, 18, 19 or 20 and a detectable platinum compound together with instructions for the use thereof as a detector for small RNA fragments.

25. A process according to claim 1 substantially as described herein.

26. A detector according to claim 15 substantially as described herein.